AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111 Serial Number: 09/779754

Filing Date: February 8, 2001

Title: PACING AND SENSING VECTORS

Amendments to the Claims

Please amend the claims as follows:

- 1-40. (Previously Canceled)
- 41. (Previously Presented) A method, comprising:

programming at least one first pacing pulse vector between (1) at least one of a first left ventricular electrode and a second left ventricular electrode in a left ventricular region, and (2) a first supraventricular electrode in a right atrial region; and

delivering a pacing pulse according to the at least one first programmed pacing pulse vector.

42. (Previously Presented) The method of claim 41, including:

programming at least one sensing vector between (1) at least one of the first left ventricular electrode and the second left ventricular electrode and (2) the first supraventricular electrode; and

sensing a cardiac signal according to the at least one programmed sensing vector.

- 43. (Previously Presented) The method of claim 41, including programming at least one second pacing pulse vector between (1) at least one of the first left ventricular electrode and the second left ventricular electrode and (2) a conductive housing of an implantable pulse generator, and where delivering the pacing pulse includes delivering the pacing pulse according to the at least one second programmed pacing pulse vector.
- 44. (Previously Presented) The method of claim 41, including programming at least one second pacing pulse vector between (1) at least one of the first left ventricular electrode and the second left ventricular electrode and (2) a first right ventricular electrode in a right ventricular region; and

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delivering a pacing pulse according to the at least one second programmed pacing pulse vector.

- 45. (Previously Presented) The method of claim 44, wherein delivering the pacing pulse includes delivering the pacing pulse from the commonly connected first and second left ventricular electrodes to the first right ventricular electrode.
- 46. (Previously Presented) The method of claim 44, wherein delivering the pacing pulse includes delivering the pacing pulse between (1) the commonly connected first left ventricular electrode and the second left ventricular electrode and (2) the commonly connected first right ventricular electrode and a housing of an implantable pulse generator.
- 47. (Previously Presented) The method of claim 41, wherein the programming the at least one first pacing pulse vector includes programming the at least one first pacing pulse vector between (1) at least one of the first left ventricular electrode, the second left ventricular electrode and a third left ventricular electrode in the left ventricular region, and (2) the first supraventricular electrode in a right atrial region; and

delivering the pacing pulse according to the at least one first programmed pacing pulse vector.

48. / (Previously Presented) A method, comprising:

programming at least one first pacing pulse vector between (1) at least one of a first left ventricular electrode and a second left ventricular electrode in a left ventricular region, and (2) a right ventricular electrode in a right ventricular region; and

delivering a pacing pulse according to the programmed at least one first pacing pulse vector.

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49. (Previously Presented) The method of claim 48, including:

programming at least one sensing vector between (1) at least one of the first left ventricular electrode and the second left ventricular electrode, and (2) the right ventricular electrode; and

sensing a cardiac signal according to the programmed at least one sensing vector.

- 50. (Previously Presented) The method of claim 48, including programming at least one second pacing pulse vector between (1) at least one of the first left ventricular electrode and the second left ventricular electrode, and (2) a conductive housing of an implantable pulse generator, and wherein delivering the pacing pulse includes delivering the pacing pulse according to the at least one second programmed pacing pulse vector.
- 51. (Previously Presented) The method of claim 48, including programming at least one second pacing pulse vector between (1) at least one of the first left ventricular electrode and the second left ventricular electrode, and (2) a supraventricular electrode in a right atrial region; and delivering a pacing pulse according to the at least one second pacing pulse vector.
- 52. (Previously Presented) The method of claim 51, wherein delivering the pacing pulse includes delivering the pacing pulse between (1) the commonly connected first and second left ventricular electrodes and (2) the supraventricular electrode.
- 53. (Previously Presented) The method of claim 51, wherein delivering the pacing pulse includes delivering the pacing pulse between (1) the commonly connected first left ventricular electrode and the second left ventricular electrode and (2) the commonly connected supraventricular electrode and a housing of an implantable pulse generator.
- 54. (Previously Presented) The method of claim 48, wherein the programming the at least one first pacing pulse vector includes programming the at least one first pacing pulse vector between (1) at least one of the first left ventricular electrode, the second left ventricular electrode

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and a third left ventricular electrode in the left ventricular region, and (2) the first right ventricular electrode.

55. (Original) A method, comprising:

delivering a pacing level pulse from a first ventricular defibrillation electrode as a cathode to a first ventricular pacing/sensing electrode as an anode.

- 56. (Original) The method of claim 55, including positioning the first ventricular defibrillation electrode in a right ventricular region, and the first pacing/sensing electrode in an apex of the right ventricular region.
- 57. (Previously Presented) A method comprising: disposing a first electrode in association with a left ventricular region of a heart; disposing a second electrode in association with a right atrial region of the heart; and delivering a first pacing pulse between the first and second electrodes.
- 58. (Previously Presented) The method of claim 57, further comprising:
 disposing a third electrode in association with the left ventricular region;
 coupling the third electrode electrically in common with the first electrode; and
 wherein the delivering the first pacing pulse includes delivering the pacing pulse
 between: (1) the commonly connected first and third electrodes; and (2) the second electrode.
- 59. (Previously Presented) The method of claim 58, further comprising sensing a cardiac signal between: (1) the commonly connected first and third electrodes; and (2) the second electrode.
- 60. (Previously Presented) The method of claim 57, further comprising sensing a cardiac signal between the first and second electrodes.

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(Previously Presented) The method of claim 57, further comprising:
 disposing a conductive housing of an implantable pulse generator in association with the heart; and

delivering a second pacing pulse between the first electrode and the conductive housing of the implantable pulse generator.

- 62. (Previously Presented) The method of claim 61, further comprising:
 disposing a third electrode in association with the left ventricular region;
 coupling the third electrode electrically in common with the first electrode; and
 wherein the delivering the second pacing pulse includes delivering the second pacing
 pulse between (1) the commonly-connected first and third electrodes and (2) the conductive
 housing of the implantable pulse generator.
- 63. (Previously Presented) A method comprising: disposing a first electrode in association with a left ventricular region of a heart; disposing a second electrode in association with a right ventricular region of the heart; and delivering a first pacing pulse between the first and second electrodes.
- 64. (Previously Presented) The method of claim 63, further comprising: disposing a third electrode in association with the left ventricular region; coupling the third electrode electrically in common with the first electrode; and wherein the delivering the first pacing pulse includes delivering the pacing pulse between: (1) the commonly connected first and third electrodes; and (2) the second electrode.
- 65. (Previously Presented) The method of claim 64, further comprising sensing a cardiac signal between: (1) the commonly connected first and third electrodes; and (2) the second electrode.

- 66. (Previously Presented) The method of claim 63, further comprising sensing a cardiac signal between the first and second electrodes.
- 67. (Previously Presented) The method of claim 63, further comprising:
 disposing a conductive housing of an implantable pulse generator in association with the heart; and

delivering a second pacing pulse between the first electrode and the conductive housing of the implantable pulse generator.

- 68. (Previously Presented) The method of claim 67, further comprising:
 disposing a third electrode in association with the left ventricular region;
 coupling the third electrode electrically in common with the first electrode; and
 wherein the delivering the second pacing pulse includes delivering the second pacing
 pulse between (1) the commonly-connected first and third electrodes and (2) the conductive
 housing of the implantable pulse generator.
- 69. (Previously Presented) A method comprising: disposing a cathodic first electrode within a ventricle at an apex of the ventricle; disposing an anodic second electrode within the ventricle at a location that is more proximal than the first electrode; and

delivering a pacing pulse between the cathodic first electrode and the anodic second electrode.

70. (Previously Presented) The method of claim 69, wherein the disposing the anodic second electrode includes disposing a defibrillation electrode.

71. (Currently Added) A method, comprising:

programming at least one first pacing pulse vector between (1) at least one of a first left ventricular electrode and a second left ventricular electrode in a left ventricular region, and (2) a right ventricular electrode in a right ventricular region; AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111
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delivering a pacing pulse according to the programmed at least one first pacing pulse vector.

programming at least one second pacing pulse vector between (1) at least one of the first left ventricular electrode and the second left ventricular electrode, and (2) a supraventricular electrode in a right atrial region; and

delivering a pacing pulse according to the at least one second pacing pulse vector.

- 72. (Currently Added) The method of claim 71, wherein the delivering the pacing pulse according to the at least one second pacing pulse vector includes delivering the pacing pulse between (1) the commonly connected first and second left ventricular electrodes and (2) the supraventricular electrode.
- 73. (Currently Added) The method of claim 71, wherein the delivering the pacing pulse according to the at least one second pacing pulse vector includes delivering the pacing pulse between (1) the commonly connected first left ventricular electrode and the second left ventricular electrode and (2) the commonly connected supraventricular electrode and a housing of an implantable pulse generator.
- 74. (Currently Added) A method comprising: disposing a first electrode in association with a left ventricular region of a heart; disposing a second electrode in association with a right atrial region of the heart; delivering a first pacing pulse between the first and second electrodes; disposing a conductive housing of an implantable pulse generator in association with the heart; and

delivering a second pacing pulse between the first electrode and the conductive housing of the implantable pulse generator.



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75. (Currently Added) The method of claim 74, further comprising:
disposing a third electrode in association with the left ventricular region;
coupling the third electrode electrically in common with the first electrode; and
wherein the delivering the second pacing pulse includes delivering the second pacing
pulse between (1) the commonly-connected first and third electrodes and (2) the conductive
housing of the implantable pulse generator.